

**IN THE CLAIMS:**

- 1        1. (Previously presented) A system for managing ink information in a computer system  
2        having a pen-based input tablet, the system comprising:
  - 3                a pen driver coupled to the pen-based input/display tablet and configured to col-
  - 4                lect and organize the ink information entered at the pen-based input tablet into ink
  - 5                strokes;
  - 6                an ink memory area organized into one or more ink phrase data structures; and
  - 7                an ink manager coupled to the pen driver for receiving the ink strokes, the ink
  - 8                manager having an ink phrase termination engine configured to examine the ink informa-
  - 9                tion collected by the pen driver and, upon detecting the occurrence of an ink phrase ter-
  - 10               mination event, to identify a respective end of an ink phrase to the ink manager,
  - 11                whereby the ink information entered at the pen-based input tablet is associated
  - 12                with a client application, and
  - 13                the ink manager stores the ink strokes received prior to the ink phrase termination
  - 14                event in a selected ink phrase data structure and, in response to receiving from the client
  - 15                application a reference context affiliated with the un-recognized ink strokes of the ink
  - 16                phrase, associates the reference context with the ink strokes.
- 1        2. (Previously presented) The system of claim 1 wherein  
2                the ink manager, in response to the occurrence of an ink phrase termination event,  
3                is configured to pass the un-recognized ink strokes of the respective ink phrase to the cli-  
4                ent application.
- 1        3. (Canceled)

- 1        4. (Previously presented) The system of claim 1 wherein the ink manager associates the  
2        reference context with the un-recognized ink strokes by appending the reference context  
3        to the selected ink phrase data structure.
  
- 1        5. (Original) The system of claim 2 wherein the ink phrase termination engine is config-  
2        ured to initiate a time-out for each ink stroke and further wherein the termination engine  
3        identifies the occurrence of an ink phrase termination event when the time-out expires  
4        before the next sequential ink stroke is detected.
  
- 1        6. (Original) The system of claim 5 wherein the time-out has a value that is settable by a  
2        user of the computer system.
  
- 1        7. (Original) The system of claim 5 wherein the pen-based input tablet has a surface and  
2        the ink information generated by the tablet includes out-of-proximity data corresponding  
3        to the pen being lifted above the surface of the tablet, and further wherein the termination  
4        engine detects the occurrence of an ink phrase termination event upon detecting out-of-  
5        proximity data from the tablet.
  
- 1        8. (Original) The system of claim 2 further comprising:
  - 2                one or more handwriting recognition engines for generating hypotheses based on  
3                the ink information entered at the pen-based tablet; and
  - 4                a handwriting recognition manager coupled to both the ink manager and the one  
5                or more handwriting recognition engines, the handwriting recognition manager config-  
6                ured and arranged to coordinate operation of the one or more handwriting recognition  
7                engines, wherein
    - 8                        the ink strokes received at the ink manager are passed to the handwriting  
9                        recognition manager, and
    - 10                  the ink manager notifies the handwriting recognition manager of the oc-  
11                  currence of each ink phrase termination event and, in response, the handwriting

12       recognition manager directs a selected handwriting recognition engine to generate  
13       one or more hypotheses for the ink strokes corresponding to the respective ink  
14       phrase.

1       9. (Original) The system of claim 8 wherein the handwriting recognition manager in co-  
2       operation with the selected handwriting recognition engine employs a word segmentation  
3       model to the ink strokes as they are received by the ink manager and, in response to de-  
4       termining that a given ink stroke represents a new word, is permitted to issue an ink  
5       phrase termination signal to the ink manager.

1       10. (Original) The system of claim 8 wherein  
2               the client application is configured to define at least one data entry field for dis-  
3       play on the tablet and to establish corresponding boundary coordinates for the at least one  
4       data entry field, and  
5               the termination engine identifies the occurrence of an ink phrase termination  
6       event when an ink stroke or portion thereof is outside of the boundary coordinates for the  
7       at least one data entry field.

1       11. (Original) The system of claim 8 wherein the one or more hypotheses are provided to  
2       the client application.

1       12. (Original) The system of claim 8 wherein the ink manager  
2               in response to receiving from the client application a reference context affiliated  
3       with the un-recognized ink strokes of the ink phrase, associates the reference context with  
4       the ink strokes, and  
5               in response to a request by the client application, returns the affiliated reference  
6       context to the client application together with the one or more hypotheses.

- 1        13. (Original) The system of claim 8 wherein, in response to receiving an indication that
- 2        the client application has consumed the un-recognized ink strokes, the ink manager di-
- 3        rects the handwriting recognition manager not to generate one or more hypotheses for the
- 4        ink strokes.
  
- 1        14. (Original) The system of claim 8 wherein
  - 2                in response to receiving the un-recognized ink strokes, the client application es-
  - 3                tablishes a corresponding recognition context for the ink strokes, and
  - 4                the handwriting recognition manager receives the recognition context and directs
  - 5                the selected handwriting recognition engine to utilize the recognition context in generat-
  - 6                ing the one or more hypotheses.
  
- 1        15. (Original) The system of claim 14 wherein the one or more hypotheses generated by
- 2        the selected handwriting recognition engine utilizing the recognition context from the cli-
- 3        ent application are provided to the client application.
  
- 1        16. (Currently amended) A method for managing ink information in a computer system
- 2        having a pen-based input tablet that may include an integrated display for generating ink
- 3        information as a pen is moved across the tablet, the method comprising the steps of:
- 4                receiving the ink information generated by the input tablet;
- 5                ~~identifying when the pen is lifted from the tablet so as to organizing[e]~~ the ink
- 6                information into corresponding ink strokes;
- 7                organizing the ink strokes into one or more ink phrases as defined by one or more
- 8                ink phrase termination events; and
- 9                in response to receiving a reference context from a client application affiliated
- 10          with the un-recognized ink strokes of the ink phrase, associating the reference context
- 11          with the ink strokes.

- 1    17. (Currently amended) The method of claim 16 wherein the step of organizing the ink  
2    strokes into one or more ink phrases comprises the steps of:
  - 3       examining the ink information to determine whether an ink phrase termination
  - 4       event has occurred; and
  - 5       in response to the occurrence of an ink phrase termination event, segregating the
  - 6       ink strokes received prior to the termination event in a designated ink phrase data struc-
  - 7       ture.
- 1    18. (Previously presented) The method of claim 17 further comprising the step of passing  
2       the un-recognized ink strokes of the respective ink phrase to the client application in re-  
3       sponse to the ink phrase termination event.
- 1    19. (Canceled).
- 1    20. (Previously presented) The method of claim 17 wherein the reference context is asso-  
2       ciated with the respective ink phrase by appending the reference context to the designated  
3       ink phrase data structure.
- 1    21. (Previously presented) The method of claim 17 further comprising the steps of:
  - 2       generating one or more recognition hypotheses for the ink strokes of the ink
  - 3       phrase data structure; and
  - 4       passing the one or more recognition hypotheses to the client application together
  - 5       with the respective reference context.
- 1    22. (Original) The method of claim 17 wherein the ink information from the input tablet  
2       further includes out-of-proximity data which corresponds to the pen being lifted above a  
3       surface of the tablet, the method further comprising the steps of:
  - 4       examining the ink information to detect out-of-proximity data;

5           identifying the occurrence of an ink phrase termination event in response to de-  
6 tecting out-of-proximity data.

1       23. (Previously presented) The method of claim 17 wherein the client application defines  
2 a form for display on the tablet, the form having one or more data entry fields for receiv-  
3 ing handwritten information, the method further comprising the steps of:

4           receiving a set of bounding coordinates established by the client application for  
5 the one or more data entry fields;

6           comparing the ink information from the input tablet with the bounding coordi-  
7 nates of the one or more data entry fields; and

8           identifying the occurrence of an ink phrase termination event in response to de-  
9 tecting ink information moving outside of the bounding coordinates for at least one of the  
10 one or more data entry fields.

1       24. (Previously presented) The method of claim 17 wherein the computer system includes  
2 at least one recognition engine, the method further comprising the steps of:

3           configuring the recognition engine to apply a word segmentation model to the ink  
4 strokes as they are organized; and

5           identifying the occurrence of an ink phrase termination event when the word seg-  
6 mentation model determines that a given ink stroke is part of a new word relative to an  
7 immediately prior ink stroke.

1       25. (Original) The method of claim 17 further comprising the steps of:

2           initiating a time-out mechanism upon receipt of each ink data point; and

3           identifying the occurrence of an ink phrase termination event when the time-out  
4 expires prior to receiving a next sequential ink data point.

- 1    26. (Original) The method of claim 25 wherein the ink information from the input tablet
- 2    further includes out-of-proximity data which corresponds to the pen being lifted above a
- 3    surface of the tablet, the method further comprising the steps of:
  - 4       examining the ink information to detect out-of-proximity data;
  - 5       identifying the occurrence of an ink phrase termination event in response to de-
  - 6       tecting out-of-proximity data.
- 1    27. (Currently amended) A computer readable medium containing executable program
- 2    instructions for organizing ink information that is generated by a pen-based input tablet
- 3    as a pen moves across the tablet and is associated with a client application, the executable
- 4    program instructions comprising program instructions for:
  - 5       receiving the ink information generated by the input tablet;
  - 6       ~~identifying when the pen is lifted from the tablet so as to organize[e]~~ the ink
  - 7       information into corresponding ink strokes;
  - 8       examining the ink information to determine whether an ink phrase termination
  - 9       event has occurred;
  - 10      in response to the occurrence of an ink phrase termination event, segregating the
  - 11      ink strokes received prior to the termination event in a designated ink phrase data struc-
  - 12      ture; and
  - 13      in response to receiving a reference context from the client application affiliated
  - 14      with the un-recognized ink strokes of the ink phrase, associating the reference context
  - 15      with the ink strokes.
- 1    28. (Previously presented) The computer readable medium of claim 27 further compris-
- 2    ing program instructions for passing the un-recognized ink strokes of the respective ink
- 3    phrase to the client application in response to the ink phrase termination event.

1    29. (Original) The computer readable medium of claim 28 further comprising program  
2    instructions for, in response to receiving an indication that the client application has con-  
3    sumed the un-recognized ink strokes, blocking recognition of the ink strokes.

1    30. (Canceled)

1    31. (Previously presented) The computer readable medium of claim 27 wherein the refer-  
2    ence context is associated with the ink strokes by appending the reference context to the  
3    designated ink phrase data structure.

1    32. (Previously presented) The computer readable medium of claim 27 further compris-  
2    ing program instructions for:  
3         generating one or more recognition hypotheses for the ink strokes of the ink  
4         phrase data structure; and  
5         passing the one or more recognition hypotheses to the client application.

1    33. (Currently amended) The computer readable medium of claim 32 further comprising  
2    program instructions for:  
3         ~~in response to receiving a reference context from the client application affiliated~~  
4         ~~with the un-recognized ink strokes of the ink phrase, associating the reference context with~~  
5         ~~the ink strokes; and~~  
6         in response to a request from the client application, returning the reference con-  
7         text to the client application along with the one or more recognition hypotheses.

1    34. (Original) The computer readable medium of claim 32 wherein the client application  
2    establishes a recognition context in response to receiving the un-recognized ink strokes of  
3    the ink phrase and the program instructions from generating one or more recognition hy-  
4    potheses further comprise program instructions for utilizing the recognition context estab-  
5    lished by the client application.

- 1       35. (Original) The computer readable medium of claim 27 wherein the program instruc-  
2       tions for examining comprise program instructions for:
  - 3              initiating a time-out mechanism upon receipt of each ink data point; and
  - 4              identifying the occurrence of an ink phrase termination event when the time-out
  - 5       expires prior to receiving a next sequential ink data point.
- 1       36. (Original) The computer readable medium of claim 35 wherein the ink information  
2       further includes out-of-proximity data which corresponds to the pen being lifted above a  
3       surface of the tablet, and the program instructions for examining further comprise pro-  
4       gram instructions for:
  - 5              examining the ink information to detect out-of-proximity data;
  - 6              identifying the occurrence of an ink phrase termination event in response to de-  
7       tecting out-of-proximity data.
- 1       37. (New) A method for managing ink information in a computer system having a pen-  
2       based input tablet and a display for generating ink information as a pen is moved across  
3       the tablet, the method comprising:
  - 4              organizing ink information generated at the input tablet into one or more ink  
5       phrases, whereby each ink phrase is defined by an occurrence of one or more predeter-  
6       mined ink phrase termination events; and
  - 7              in response to receiving a reference context from a client application affiliated  
8       with an un-recognized ink phrase, associating the reference context with the un-  
9       recognized ink phrase.
- 1       38. (New) The method of claim 37 wherein the reference context is either a tag generated  
2       by the client application for client-based identification, or a pointer to a data structure  
3       containing client-related information.

- 1        39. (New) The method of claim 38 wherein the organizing ink information comprises:  
2                examining the ink information to determine whether an ink phrase termination  
3                event has occurred; and  
4                in response to the occurrence of an ink phrase termination event, segregating the  
5                ink information received prior to the termination event in a designated ink phrase data  
6                structure.
- 1        40. (New) The method of claim 39 wherein the reference context is associated with the  
2                respective ink phrase by appending the reference context to the designated ink phrase  
3                data structure.
- 1        41. (New) The method of claim 39 further comprising:  
2                generating one or more recognition hypotheses for the ink information of the ink  
3                phrase data structure; and  
4                passing the one or more recognition hypotheses to the client application together  
5                with the respective reference context.
- 1        42. (New) A computer readable medium containing executable program instructions for  
2                organizing ink information that is generated by a pen-based input tablet as a pen moves  
3                across the tablet and is associated with a client application, the executable program in-  
4                structions comprising program instructions for:  
5                receiving the ink information generated by the input tablet;  
6                examining the ink information to determine whether an ink phrase termination  
7                event has occurred;  
8                in response to the occurrence of an ink phrase termination event, segregating the  
9                ink information received prior to the termination event in a designated ink phrase data  
10                structure; and

11           in response to receiving a reference context from the client application affiliated  
12   with the un-recognized ink phrase, associating the reference context with the un-  
13   recognized ink phrase.

1   43. (New) The computer readable medium of claim 42 wherein the reference context is  
2   either a tag generated by the client application for client-based identification, or a pointer  
3   to a data structure containing client-related information.

1   44. (New) The computer readable medium of claim 43 further comprising program in-  
2   structions for passing the ink information of the respective un-recognized ink phrase to  
3   the client application in response to the ink phrase termination event.

1   45. (New) The computer readable medium of claim 44 further comprising program in-  
2   structions for, in response to receiving an indication that the client application has con-  
3   sumed the un-recognized ink phrase, declining to perform recognition of the ink informa-  
4   tion.

1   46. (New) The computer readable medium of claim 42 further comprising program in-  
2   structions for:

3           generating one or more recognition hypotheses for the ink information of the ink  
4   phrase data structure; and

5           passing the one or more recognition hypotheses to the client application.

1   47. (New) The computer readable medium of claim 46 further comprising program in-  
2   structions for in response to a request from the client application, returning the reference  
3   context to the client application along with the one or more recognition hypotheses.